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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,502	08/18/2003	Takashi Hama	Q76035	1716
23373	7590	10/21/2004	EXAMINER CHEN, SOPHIA S	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			ART UNIT 2852	PAPER NUMBER

DATE MAILED: 10/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/642,502

Applicant(s)

HAMA, TAKASHI

Examiner

Sophia S. Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/18/03, 5/3/04, 5/13/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Ld (Figure 3A) and c (Figure 7). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because of the following informalities:

a. Reference character "a" has been used to designate both "a Gaussian curve" (page 16, line 11 and Figure 4) and "a curve representing the tone characteristics of the apparatus" (page 22, lines 2-3 and Figure 7).

2. b. Reference character “b” has been used to designate both “a line” (page 16, lines 14-15 and Figure 4) and “an ideal tone characteristic curve” (page 22, lines 5-6 and Figure 7).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
4. The abstract of the disclosure is objected to because “(Fig.3A)” (page 39, last line) should be deleted. Correction is required. See MPEP § 608.01(b).
5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections – 35 U.S.C. §102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 5 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Mestha (US Pat. No. 5,543,896, cited in Form PTO-1449).

The patent discloses an image forming apparatus comprising: an image carrier 10 constructed to bear a toner image thereon (column 3, lines 1-3); density detection means (densitometer) 24 constructed to detect a density of an image in a predetermined detection region on the image carrier 10 and operative to detect a toner image density of the toner image borne on the image carrier 10 (column 3, lines 57-60 and Figure 1); a toner image having tone levels monotonously and continuously increased or decreased along a predetermined direction is formed as a gradation patch image which is subjected to density detection by the density detection means 24, and tone correction information is defined based on the detection results and then used for tone correction of an input image signal thereby to obtain a tone-corrected image signal, based on which an image is formed (column 2, lines 30-38; column 4, lines 4-16; Figures 2 and 3); and the gradation patch image is monotonously and consistently increased or decreased in the tone level along the predetermined direction (column 2, lines 30-38; column 4, lines 4-16; Figures 2 and 3).

8. Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by Mestha.

The patent discloses an image forming method for forming an image based on a tone-corrected image signal obtained by tone-correcting an input image signal based on tone correction information, wherein a gradation patch image progressively increased or decreased in the tone level along a predetermined direction is formed and subject to density detection means 24 for detection of a tone image density thereof, and then the tone correction information is defined based on the detection results (column 2, lines 30-38; column 4, lines 4-16; Figures 2 and 3), and wherein the gradation patch image comprises either an image monotonously and continuously increased or decreased in the tone level along the predetermined direction or an image having the tone levels increased or decreased stepwise along the predetermined direction and at a smaller pitch than a width of a detection region of the density detection means 24 (column 2, lines 30-38; column 4, lines 4-16 and 32-34, column 4, line 56 to column 5, line 5; Figures 2 and 3).

Claim Rejections – 35 U.S.C. §103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-3 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mestha in view of Ernst (US Pat. No. 4,377,338).

Mestha discloses an image forming apparatus comprising: an image carrier 10 constructed to bear a toner image thereon (column 3, lines 1-3); density detection means (densitometer) 24 constructed to detect a density of an image in a predetermined detection region on the image carrier 10 and operative to detect a toner image density of the toner image borne on the image carrier 10 (column 3, lines 57-60 and Figure 1); a toner image having tone levels progressively increased or decreased along a predetermined direction is formed as a gradation patch image which is subjected to density detection by the density detection means 24, and tone correction information is defined based on the detection results and then used for tone correction of an input image signal thereby to obtain a tone-corrected image signal, based on which an image is formed (column 2, lines 30-38; column 4, lines 4-16; Figures 2 and 3); and the gradation patch image has the tone levels thereof increased or decreased continuously at a smaller test pattern ($0.6 \text{ inches} / 256 = 0.058 \text{ mm}$; column 4, lines 4-7 and column 5, lines 3-5) than a width of the detection region (a few millimeters; column 4, lines 32-34) with respect to the predetermined direction; the gradation patch image comprises a plurality of monotone toner images differs from one another in the tone levels and continuously arranged along the predetermined direction, and wherein the monotone toner image has a smaller width than that of the detection region with respect to the predetermined direction (column 4, lines 4-16 and 32-34; column 5, lines 3-5; and Figures 2 and 3); the plural monotone images each has the same width with respect to the predetermined direction and has a constant tone level difference from a respective adjacent monotone toner image thereto (column 4, lines 4-16 and 32-34; column 5,

lines 3-5; and Figures 2 and 3); the density detection means 24 performs the density detection on a plurality of positions in the gradation patch image, the positions shifted from each other along the predetermined direction (column 4, lines 4-14); and the detection regions individually corresponding to any pair of adjoining ones of the plural positions have at least a respective part thereof in contacting relation or in overlapping relation (column 4, lines 4-16 and 32-34; column 5, lines 3-5; and Figures 2 and 3).

Mestha differs from the instant claimed invention in not disclosing the gradation patch image has the tone levels thereof increased or decreased stepwise, and the maximum tone level of the gradation patch image is the maximum practicable tone level for the apparatus whereas the minimum tone level of the gradation patch image is the minimum practicable tone level for the apparatus.

Ernst discloses an image forming apparatus comprising an image carrier 121; density detection means 106; and a gradation patch image has tone levels thereof increased stepwise (Figure 2); and the maximum tone level (black) of the gradation patch image is the maximum practicable tone level for the apparatus whereas the minimum tone level (white) of the gradation patch image is the minimum practicable tone level for the apparatus (column 4, line 67 to column 5, line 1 and Figure 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the stepwise increased tone levels and the maximum/minimum tone levels as taught by Ernst to the gradation patch image of Mestha to perform the same functionality for monitoring the level of toner in the

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developer (Ernst; column 1, lines 20-22), and to cover all possible tone levels (from all-black to all-white) for comparison.

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mestha in view of Ernst as applied to claim 3 above, and further in view of *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382 and *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969).

Mestha in view of Ernst, as discussed above, differs from the instant claimed invention in not disclosing the difference of tone level between any pair of adjoining ones of the plural monotone toner images is the minimum practicable level difference for the apparatus.

Peterson discloses "The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."

In re Hoeschele discloses "--- which fell within the broad scope of the references were held to be unpatentable thereover because, among other reasons, there was no evidence of the criticality of the claimed ranges of molecular weight or molar proportions."

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the optimization of range as taught by both *Peterson* and *In re Hoeschele* to the difference of tone levels of Mestha in view of Ernst because it only involves routine experimentation to discover the optimum or workable ranges.

Other Prior Art

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hattori et al. (US Pat. No. 5,274,424) discloses an image forming apparatus comprising an image carrier; density detection means; and a tone image having tone levels increased stepwise.

Mamizuka (US Pat. No. 6,061,144) discloses an image forming apparatus comprising an image carrier; density detection means; and a tone image having tone levels increased stepwise.

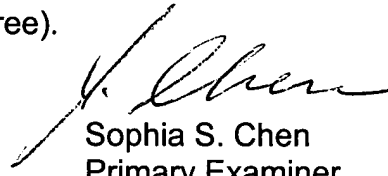
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sophia S. Chen whose telephone number is (703) 308-7617. The examiner can normally be reached on M-F (7:00-3:00) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur Grimley can be reached on (703) 308-1373. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sophia S. Chen
Primary Examiner
Art Unit 2852

Ssc
October 18, 2004